

Prevalence, perception, and habits of mothers to use of anise tea for infantile colic in Riyadh city, Saudi Arabia

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ABSTRACT

Background: Star anise has been used as an herbal tea to treat colicky pain in infants. Tea is a prominent part of Arab culture, and anise tea is being commonly used for infantile colic (IC). **Methodology:** This was a cross-sectional study conducted in primary health care in Riyadh to assess mothers' prevalence, perception, and habits to use of anise tea in infants for treatment of IC in Saudi Arabia. Data was collected using a predesigned questionnaire. **Results:** A total of 163 children and their mothers were included in this study. 43.6% suffered from cramps and abdominal pain frequently, 41.1% sometimes had cramps and abdominal pain, and 15.3% did not suffer from this condition. The child's age ($P=0.035$), the marital status of the mother ($P=0.003$), and the reasons for giving Anise tea for colic pain ($P=0.012$) were significantly associated with the frequency of giving Anise tea. **Conclusion:** We demonstrated a relatively high prevalence of IC in Riyadh, Saudi Arabia. However, low levels of knowledge regarding IC and Anise tea were reported among the Saudi mothers. The majority of the mothers used Anise tea for IC, and only a few mothers visited the doctor for the same reason. Most of the mothers did not notice any side effects of Anise tea.

Keywords: Infantile colic, herbal tea, star anise, prevalence and habits

1. INTRODUCTION

Star anise (*Illicium verum*) is an herbal medicinal plant widely distributed throughout the southwestern parts of the Asian continent and is widely known for its antiviral effects. Besides, several other biological benefits include antioxidant, antimicrobial, antifungal, anthelmintic, insecticidal, secretolytic, antinociceptive, anti-inflammatory, gastroprotective, sedative properties, expectorant, and spasmolytic, and estrogenic effects (Patra et al., 2020). Star anise is also used as a herbal tea to treat colicky pain in infants; however, it may have neurologic and digestive (GIT) toxicities (Minodier et al., 2003). Evidence proved that there is strict national rule of star anise in newborns due to its possible hazards in this vulnerable group (Ize-Ludlow et al., 2004).



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IC is a common, self-resolving condition, likely to be an exacerbation of normal infant crying brought about by physiological and psychosocial factors and associated with adverse associations including maternal depression, child abuse being the most potent risk factor for the shaken baby syndrome, and untimely interruption of breastfeeding (Sung, 2018). It affects 5% to 20% of infant's worldwide (Vandenplas et al., 2015). IC considered the commonest health problems seen in infants, reported in 5% to 30% of all infants (Kheir, 2012). The colicky episode is characterized by loud, persistent crying, the passage of gases, and flexing the hips toward the abdomen (Reinthal et al., 2011).

The potential causes of IC comprise fast feeding, eat too much and swallowing excessive air and improper feeding techniques, and cow's milk intolerance. Furthermore, colic is also observed among infants of anxious mothers and those who consume certain types of food during lactation, such as eggs, peanuts, soy, and fish. Mothers of colicky infants or young children need to remember that this is a harmless and self-limiting condition (Workie, 2018). The underlying etiology for IC is variable; it may be related to formula intolerance, immaturity of the GIT, food aversions, too much gas creation, in conjunction with motherly anxiety and maternal-infant bonding issues, nonetheless its pathophysiology left overs in distinct (Vik et al., 2009). Recent treatments include dietetic (chiefly mother's diet), physical, behavioral, and pharmacological (Perry et al., 2019). Parents may pursue complementary and alternative (CAM) health care for their babies (Barr, 1998).

The first step for managing IC is excluding the organic causes of crying by careful history and examination. The cornerstone of management for IC is to help families cope with their infant's symptoms, reduce the risks of parental depression, child abuse, and early breastfeeding cessation, and prevent the possibility of long-term adverse effects (Carnes et al., 2018). Herbal mixtures given to colicky infants may be effective; however, large quantities might decrease the milk consumption and lead to nutritional deficiencies (Martinelli et al., 2017). Aniseeds encompass 1.5–5% essential oil, used as a essence, carminative, and respite of GIT colic. Ingestion of aniseed in lactating mothers enhances milk production and dismisses infants starting GIT troubles (Shojaii and Abdollahi, 2012).

To our knowledge, there is no previous study in Saudi Arabia conducted to identify the prevalence, perception, and habits of mothers towards the usage of Anise Tea for IC in Saudi Arabia. Therefore, this study aims to assess mothers' benefits, hazards, and attitudes towards the usage of Anise Tea for IC in Riyadh, Saudi Arabia.

Research Question

What are the habits of mothers towards the usage of anise tea in infants for IC among Saudi mothers?

Aim of the study

This study aims to determine the perception and habits of mothers towards the usage of anise tea in infants for IC for improving their health outcomes.

General objectives

To assess the prevalence and traditional habits among Saudi mothers towards using anise tea in infants for IC

Specific objectives

To determine the side effects of using anise tea in infants for IC

To determine the alternatives to stop this common habit for better health of infants

This information will be useful to revise ongoing programs and devise new strategies to limit the use of anise tea among mothers for IC.

2. MATERIALS AND METHODS

Study setting

This observational cross-sectional study was carried in Riyadh city, over infants under the age of two, randomly selected from the primary health care center.

Study duration

The study was conducted over the duration of 6 months from November 2020 to April 2021.

Study subjects

The study sample was selected from the mothers of infants evaluated by primary care physicians, pediatricians, or family physicians suffering from IC. They were recruited using a non-random procedure (i.e., convenience sampling). Parents of the recruited infants provided written informed consent. A written questionnaire was distributed over them in an interview with the researcher, and research assistants administrated the interview and objective measures in the enclosed space. The study protocol was first approved by the Scientific Research Committee in the Ministry of Health, Saudi Arabia.

Inclusion criteria

Saudi nationals

Both genders

Age ≤ 2 years

Infants were suffering from IC with their mothers attending the primary health care clinic evaluated by primary care physicians and family physicians.

Both breastfeed and bottle-fed infants

Exclusion criteria

Infants whose parents refuse to give written consent.

Infants were excluded if they received any medication that could affect abdominal symptoms, such as antibiotic and probiotic drugs.

Severely ill infants and infants who receive special care

Children more than two years were excluded

Sampling Method

Non-random procedure (i.e., convenience sampling)

Sample Size

The sample size is 163 infants with IC.

Sample Justification

For the assumed population of 60% (the prevalence of usage of anise tea for IC among mothers, an alpha of 5%, prevision 8%, and a non-response rate of 10%), the final calculated minimum sample size was (163).

Diagnosis of colicky infants

Infants with IC were diagnosed made according to Wessel's criteria. To be defined as severe colicky, infants should have a history of persistent, full-force crying with no apparent reason several times a day, for an overall duration \geq of 4 h/day, for more than 4 days a week with no response to the common consolation procedures (Savino et al., 2005).

Study outcome

The primary outcome measure wasto assess the prevalence of using anise tea in Saudi Arabia for colicky infants. The secondary outcome was to assess the knowledge of Saudi mothers about anise tea use in infants and habits of mothers in managing colicky infants.

Study tools

Before starting the study, each infant was subjected to a thorough clinical evaluation: anamneses, medical examination conducted by pediatricians from our Department. Trained pediatric nurses, researcher assistant, collectedthe data using a pre-structured questionnaire including demographic data, etiological factors for colicky pain (bottle feeding, constipation, food hypersensitivity; recorded as rash, or diarrhea, Cow milk allergy manifested as rash, mucous in the stool, nasal snoring, regurgitation, no weight gain over two subsequent weeks and arched body while feeding, failure to eructate the baby and unexplained colicky pain), family history of irritable bowel syndrome, and information among mothers on the side effects of anise tea use in colicky infants, common management strategies among mothers for IC. The questionnaire was pretested on a small group of people from the community; only minor changes in terminology and question order were made as a result of pretesting.

The questionnaire was developed in English and translated to Arabic. The language would be kept simple and easy to understand. The number of questions would be reduced to the absolute minimum required to reduce the burden to ensure valid responses.

Data Collection Methods, Instrument Used, and Measurements

A self-administered predesigned validated questionnaire was given to the participant mothers. All mothers were subjected to full history taking, including:

Age, gender, and highest educational attainment (primary, secondary and tertiary)

Current medication uses antispasmodics for colicky infants.

Massage for infants with colic.

Data on the use of anise tea for colicky infants

Data management

Data were collected, summarized, and reported on data collection sheets. Preceded data were entered on the computer using a database developed for data entry on *Microsoft Office Excel program 2010* with appropriate tabulation and graphical presentation. Data were then being transferred to the *Statistical Package of Social Science*, version 20 (*SPSS-20*) for quantitative data analysis.

Statistical analysis

Data were presented as percentages, median, and range for descriptive values. It was compared and tested using appropriate statistical tests like t-test, etc. Simple frequencies were used for data checking. Descriptive statistics were used for data summarization. Graphs were used to illustrate simple information. Bivariate relationships were displayed in cross-tabulations. Suitable statistical tests of significance were used where appropriate.

Data analysis

The Chi-square test was used to compare different frequencies. Description of quantitative variables in the form of mean and standard variation was performed. A description of qualitative variables in the form of frequency and percentages was performed. T-student tests of independent samples were used to compare every two quantitative groups. P-values <0.05 were deemed significant.

Ethical considerations

Data were kept confidential for research purposes only. This study poses no risk to the participant; we considered the risk-benefit ratio to be favorable. Participants who were enrolled in this study will have the rights of complete confidentiality, unbroken under any circumstances, and framed within honesty and patient dignity respect. We ensured getting informed verbal consent from the mothers of infants enrolled in this study.

3. RESULTS

Table 1 shows the sociodemographic characteristics of 163 children. Regarding the mothers' age, 41.7% aged from (30-40) years, 33.7% aged from (20-30) years, and 24.5% aged from (40-50) years. Nearly (28.8%) of the children aged from (1-6) months, 24.5% aged from (6-12) years, and 23.9% aged from (12-18) months. Most mothers (60.7%) were married, 23.9% were divorced, and 15.3% were widowed. Less than half of the mothers (48.5%) had a university degree or more, 36.2% had secondary education, and 15.3% had primary education or less. 48.5% of the mothers used both natural and artificial breastfeeding types.

Table 1 The sociodemographic characteristics of the participants.

Parameter		Frequency (%)
Mother's age	20-30 years	55 (33.7%)
	30-40 years	68 (41.7%)
	40-50 years	40 (24.5%)
The child's age	1-6 months	47 (28.8%)
	6-12 months	40 (24.5%)

	12-18 months	39 (23.9%)
	18-24 months	37 (22.7%)
Marital status of the mother	Married	99 (60.7%)
	Divorced	39 (23.9%)
	Widowed	25 (15.3%)
The educational level of the mother	Primary education or less	25 (15.3%)
	Secondary	59 (36.2%)
	University of more	79 (48.5%)
Breastfeeding Type	Natural	41 (25.2%)
	Artificial	43 (26.4%)
	Both	79 (48.5%)

Table 2 shows the baby's medical history. More than half of the babies (58.9%) were healthy on the hospital admission, 35% were not healthy with hospital admission, and 6.1% suffered from diseases. 43.6% suffered from cramps and abdominal pain frequently, 41.1% sometimes had cramps and abdominal pain, and 15.3% did not suffer from this condition. Less than half of the participants (46.6%) frequently woke up from colic pain, 29.4% sometimes woke up from colic pain, and 15.3% did not suffer from this condition. 39.3% of the participants did not know about the family history of irritable bowel syndrome, and 31.9% had a family history of irritable bowel syndrome.

Table 2 The medical history of the baby

Parameter		Frequency (%)
Child condition after birth	Healthy no hospital admission	57 (35%)
	Healthy with hospital admission	96 (58.9%)
	Suffering from diseases	10 (6.1%)
A baby suffering from cramps and abdominal pain frequently	Yes	71 (43.6%)
	No	25 (15.3%)
	Sometimes	67 (41.1%)
Baby wakes up from colic pain	Yes	76 (46.6%)
	No	39 (23.9%)
	Sometimes	48 (29.4%)
Family history of irritable bowel syndrome	Yes	47 (28.8%)
	No	52 (31.9%)
	I do not know	64 (39.3%)

Table 3 assesses the mothers' level of knowledge regarding IC and Anise tea. 30.1% of the mothers accounted that constipation is the possible cause of IC, 21.5% thought it is industrial breastfeeding, and 16% thought it is because of not burping the baby after feeding. Less than half of them (49.1%) stated the benefit of boiled aniseed for the baby is to relieve the attacks of colic and indigestion, and 34.4% believed that it is to relax the nerves and help the baby to sleep. Most mothers (68.1%) preferred using herbal medicines than medical drugs. More than half of them (55.2%) started giving the babies aniseed since birth, 28.2% started after a month, and 16.6% started after six months. 36.2% used Anise tea only when necessary, 27% used it once a day, and 25.8% used it weekly. Most of the applicants (74.8%) did not notice any side effects of giving Anise tea to the baby, 13.5% noticed child discomfort, 6.1% reported vomiting and 5.5 reported diarrhea. 44.8% reported using Anise tea because it has no side effects, 44.2% believe it is more useful, and 11% use it as cheap and available. Most mothers (65%) give the baby boiled Anise when he wakes up of colic pain, 17.8% use medical treatment for colic, and 17.2% consult their doctor.

Table 3 Assessing the knowledge level about infantile colic and Anise tea among the mothers.

Parameter		Frequency (%)
The possible causes of infantile colic	Industrial breastfeeding	35 (21.5%)
	Constipation	49 (30.1%)
	Food allergy	7 (4.3%)
	Milk allergy	21 (12.9%)
	Notburping the baby after feeding	26 (16%)
	There is no clear reason	25 (15.3%)
The benefits of boiled aniseed for the baby	Resulting from the leaching of phlegm removal	27 (16.6%)
	Relieve the attacks of colic and indigestion	80 (49.1%)
	Relaxing nerves and helps the baby to sleep	56 (34.4%)
Do you prefer to use herbal medicines over medical drugs?	Yes	111 (68.1%)
	No	15 (9.2%)
	Sometimes	37 (22.7%)
In case the baby was given aniseed, you prefer to start it at which age	Since birth	90 (55.2%)
	After a month	46 (28.2%)
	After the age of six months	27 (16.6%)
Frequency of using Anise herbs	Weekly	42 (25.8%)
	Once a day	44 (27%)
	More than once a day	18 (11%)
	Only when necessary	59 (36.2%)
Any noticed side effectsof using anise tea with your child	Child discomfort	22 (13.5%)
	Diarrhea	9 (5.5%)
	vomiting	10 (6.1%)
	cramps	0 (0%)
	None	122 (74.8%)
Reasons for using anise herbs for colic	Cheap and available	18 (11%)
	More useful	72 (44.2%)
	It has no side effects	73 (44.8%)
The mothers' practice towards baby waking up from colic pain	Giving the baby medical colic treatment	29 (17.8%)
	Giving the baby boiled Anise	106 (65%)
	Consultingthe doctor	28 (17.2%)
Relieve the attacks of colic and indigestion		49.1
Relaxing nerves and helps the baby to sleep		34.4

Table 4 indicates the participants' sociodemographic characteristics in association with the frequency of giving Anise tea. The child's age was significantly associated with the frequency of giving Anise tea ($P=0.035$). Anise tea was given only when necessary to 44.7% of the children aging (1-6) months, 42.5% of those aging (6-12) months, and 48.7% of those aging (12-18) months. The frequency of giving Anise tea was also associated with the mother's marital status ($P=0.003$) and the reasons for giving Anise tea for colic pain ($P=0.012$). Anise tea was given only when necessary by 38.4% of the married mothers, 44% of the widowed ones, and 33.4% of the divorced ones used to give it weekly. More than half of the mothers (55.6%) who reported using Anise tea because it is cheap and available gave it once a day for the child. 44.4% of those who reported using Anise tea for its usefulness gave it to the

child only when necessary. Moreover, 34.2% and 28.8% of the mothers who used Anise tea as it has no side effects gave it to the child weekly and only when necessary, respectively (figure 1).

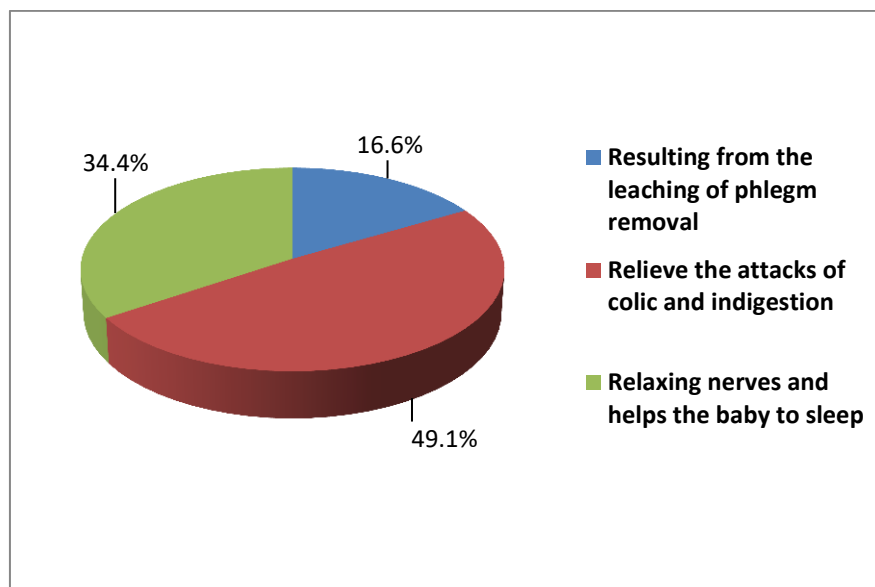


Figure 1 The benefits of boiled aniseed for the baby (participant mother's opinion)

Table 4 The participants' sociodemographic characteristics in association with the frequency of giving Anise tea

Parameter		Once a day	More than once a day	Weekly	Only when necessary	P-value
Mother's age	20-30 years	14 (25.5%)	7 (12.7%)	10 (18.2%)	24 (43.6%)	0.123
	30-40 years	14 (20.6%)	6 (8.8%)	21 (30.9%)	27 (39.7%)	
	40-50 years	16 (40%)	5 (12.5%)	11 (27.5%)	8 (20%)	
The child's age	1-6 months	7 (14.9%)	7 (14.9%)	12 (25.5%)	21 (44.7%)	0.035
	6-12 months	8 (20%)	2 (5%)	13 (32.5%)	17 (42.5%)	
	12-18 months	19 (48.7%)	3 (7.7%)	7 (17.9%)	10 (25.6%)	
	18-24 months	10 (27%)	6 (16.2%)	10 (27%)	11 (29.7%)	
Marital status of the mother	Married	33 (33.3%)	5 (5.1%)	23 (23.2%)	38 (38.4%)	0.003
	Divorced	10 (25.6%)	6 (15.4%)	13 (33.3%)	10 (25.6%)	
	Widowed	1 (4%)	7 (28%)	6 (24%)	11 (44%)	
Educational level of the mother	Primary education or less	7 (28%)	3 (12%)	9 (36%)	6 (24%)	0.104
	Secondary	21 (35.6%)	4 (6.8%)	17 (28.8%)	17 (28.8%)	
	University of more	16 (20.3%)	11 (13.9%)	16 (20.3%)	36 (45.6%)	
Breastfeeding Type	Natural	12 (29.3%)	5 (12.2%)	13 (31.7%)	11 (26.8%)	0.126
	Artificial	15 (34.9%)	5 (11.6%)	13 (30.2%)	10 (23.3%)	
	Both	17 (21.5%)	8 (10.1%)	16 (20.3%)	38 (48.1%)	
Child condition after birth	Healthy no hospital admission	17 (29.8%)	7 (12.3%)	15 (26.3%)	18 (31.6%)	0.226
	Healthy with hospital admission	23 (24%)	9 (9.4%)	23 (24%)	41 (42.7%)	
	Suffering from diseases	4 (40%)	2 (20%)	4 (40%)	0 (0%)	
Baby suffering from cramps and abdominal pain frequently	Yes	25 (35.2%)	9 (12.7%)	19 (26.8%)	18 (25.4%)	0.102
	No	3 (12%)	4 (16%)	5 (20%)	13 (52%)	
	Sometimes	16 (23.9%)	5 (7.5%)	18 (26.9%)	28 (41.8%)	
Baby wakes up from colic pain	Yes	24 (31.6%)	9 (11.8%)	23 (30.3%)	20 (26.3%)	0.149
	No	10 (25.6%)	2 (5.1%)	11 (28.2%)	16 (41%)	

	Sometimes	10 (20.8%)	7 (14.6%)	8 (16.7%)	23 (47.9%)	
Family history of irritable bowel syndrome	Yes	15 (31.9%)	4 (8.5%)	16 (34%)	12 (25.5%)	0.087
	No	10 (19.2%)	4 (7.7%)	11 (21.2%)	27 (51.9%)	
	I do not know	19 (29.7%)	10 (15.6%)	15 (23.4%)	20 (31.3%)	
Reasons for using anise herbs for colic pain	Cheap and available	10 (55.6%)	2 (11.1%)	0 (0%)	6 (33.3%)	0.012
	More useful	17 (23.6%)	6 (8.3%)	17 (23.6%)	32 (44.4%)	
	It has no side effects	17 (23.3%)	10 (13.7%)	25 (34.2%)	21 (28.8%)	

Table 5 investigates the association between the participants' sociodemographic characteristics and the reasons for giving Anise tea. We demonstrated a significant association between the frequency of the baby's suffering from cramps and abdominal pain and the reason for giving Anise tea ($P=0.03$). More than half of those with frequent cramps and abdominal pain (56.3%) used Anise tea because it has no side effects, 56% of those who do not suffer from any abdominal cramps used it because it is more useful, and 53.7% of those who sometimes have abdominal cramps also used it for its usefulness. However, we did not find any significant associations between the reasons for using Anise tea and mother's age ($P=0.721$), the child's age ($P=0.9$), the marital status of the mother ($P=0.237$), the educational level of the mother ($P=0.613$), type of breastfeeding ($P=0.248$), the child condition after birth ($P=0.081$), the baby waking up from colic pain ($P=0.65$), and the family history of irritable bowel syndrome ($P=0.199$).

Table 5 The participants' sociodemographic characteristics in association with the reasons for using Anise tea

Parameter		Cheap and available	More useful	It has no side effects	P-value
Mother's age	20-30 years	7 (12.7%)	23 (41.8%)	25 (45.5%)	0.721
	30-40 years	5 (7.4%)	33 (48.5%)	30 (44.1%)	
	40-50 years	6 (15%)	16 (40%)	18 (45%)	
The child's age	1-6 months	5 (10.6%)	22 (46.8%)	20 (42.6%)	0.9
	6-12 months	4 (10%)	20 (50%)	16 (40%)	
	12-18 months	5 (12.8%)	17 (43.6%)	17 (43.6%)	
	18-24 months	4 (10.8%)	13 (35.1%)	20 (54.1%)	
Marital status of the mother	Married	13 (13.1%)	40 (40.4%)	46 (46.5%)	0.237
	Divorced	3 (7.7%)	23 (59%)	13 (33.3%)	
	Widowed	2 (8%)	9 (36%)	14 (56%)	
Educational level of the mother	Primary education or less	3 (12%)	10 (40%)	12 (48%)	0.613
	Secondary	7 (11.9%)	22 (37.3%)	30 (50.8%)	
	University of more	8 (10.1%)	40 (50.6%)	31 (39.2%)	
Breastfeeding Type	Natural	3 (7.3%)	15 (36.6%)	23 (56.1%)	0.248
	Artificial	6 (14%)	16 (37.2%)	21 (48.8%)	
	Both	9 (11.4%)	41 (51.9%)	29 (36.7%)	
Child condition after birth	Healthy no hospital admission	5 (8.8%)	23 (40.4%)	29 (50.9%)	0.081
	Healthy with hospital admission	13 (13.5%)	47 (49%)	36 (37.5%)	
	Suffering from diseases	0 (0%)	2 (20%)	8 (80%)	
A baby suffering from cramps and abdominal pain frequently	Yes	9 (12.7%)	22 (31%)	40 (56.3%)	0.03
	No	4 (16%)	14 (56%)	7 (28%)	
	Sometimes	5 (7.5%)	36 (53.7%)	26 (38.8%)	
Baby wakes up from colic pain	Yes	10 (13.2%)	31 (40.8%)	35 (46.1%)	0.65
	No	2 (5.1%)	18 (46.2%)	19 (48.7%)	
	Sometimes	6 (12.5%)	23 (47.9%)	19 (39.6%)	
Family history of irritable bowel syndrome	Yes	3 (6.4%)	20 (42.6%)	24 (51.1%)	0.199
	No	10 (19.2%)	23 (44.2%)	19 (36.5%)	
	I do not know	5 (7.8%)	29 (45.3%)	30 (46.9%)	

4. DISCUSSION

There is no evidence-based intervention for IC since the underlying functional gastrointestinal tract condition is unknown. IC could be a reason for maternal distress, but the long-term effects are unknown due to the self-limiting nature of the disease (Zengin et al., 2016). This study aims to assess mothers' benefits, hazards, and attitudes towards the usage of Anise Tea for IC in Saudi Arabia. In the current study, we found that 43.6% of the babies had frequent cramps and abdominal pain, and 41.1% sometimes had these cramps. Didişen *et al.*, (2020) reported a 67.2% prevalence of IC among the babies of Turkish women. In another surveyed cohort study, the mothers stated 80.1% prevalence of IC (Saavedra et al., 2003). These high prevalence rates of IC may be due to the illness's description, the mother's educational status, and the mother's subjective evaluation of the psychological changes she is going through. Nearly half of the mothers in this study accounted that constipation and industrial breastfeeding are the causes of IC. Breastfeeding for the first six months is considered a protective factor against IC (Didişen *et al.*, 2020). According to Karabel *et al.*, (2010) the incidence of colic was 74% among breastfed babies and 26% among those who were not breastfed or fed formula along side breast milk, with no significant disparities noted between the incidence of colic and the method of feeding.

In this study, we found that most mothers stated that the benefit of boiled aniseed for the baby is to relieve the attacks of colic and indigestion and relax the nerves and help the baby sleep. Previous literature has demonstrated the relaxant of the essential oil of Anise, as a result of the inhibitory properties on muscarinic receptors (Boskabady *et al.*, 2001), in addition to the antispasmodic and relaxant effects of *Pimpinella anisum* (Tirapelli *et al.*, 2007). Most mothers in the current study preferred giving herbal medicine to their babies than using medical drugs to deal with IC. Of the included mothers, 65% give the baby boiled Anise when he wakes up of colic pain, 17.8% use medical treatment for colic, and only 17.2% consult their doctor. Didişen *et al.*, (2020) reported higher rates of visiting the hospital due to colic (58.6%), and only 21.6% use Anise tea as a treatment. Another descriptive study also reported higher rates of visiting the doctor due to IC (50.4%), (Çiftçi & Arıkan, 2007). Healthcare providers can effectively handle IC, and the effects can be minimized by behavioral treatment without drugs. IC should be explained to parents, and they should be told that there is no underlying disorder. They should also be informed that IC is a transient disease that will resolve on its own after three months. The behavioral changes of the families were not examined in this report. This can be considered a study's weakness. The majority of the mothers in this study did not notice any side effects of giving Anise tea to the baby; however, lower rates of child discomfort, vomiting, and diarrhea were reported. Many populations use anise tea as a treatment for infant colic; however, opposing neurologic effects in infants were reported with its home intake. Johanns *et al.*, (2002) reported general malaise, nausea, and vomiting 2 to 4 hours after consuming an herbal tea of star anise. Twenty-two of the subjects required hospitalization, and 16 experienced generalized seizures.

The current study demonstrated a significant association between the child's age, the mother's marital status, and the reasons for giving Anise tea for colic pain, and the frequency of giving Anise tea. Mothers were more careful with the young babies aging (1-6) and (6-12) months and gave them Anise tea only when necessary. A study conducted on parents or caregivers of patients seeking care at the Emergency Department in Miami Children's Hospital in 2005 assessed the knowledge and prior use, experience, and side effects of star anise use. It was found that children with symptoms swallowed larger daily amounts of star anise tea. An extraordinary prevalence of cognizance was found (45%); 60% of these defendants give the herb. Numerous care givers (79.2%) who used star anise supposed it can be given to babies under 6 months; 3.9% of respondents stated knowledge about the side effects of star anise, besides (2.6%) truly reported side effects in their kids, irrespective to the ingested quantity of star anise (Ize-ludlow, 2005).

We demonstrated a significant association between the frequencies of a baby's suffering from spasms and gut pain and the reason for giving Anise tea. More than half of those with frequent cramps and abdominal pain used Anise tea because it has no side effects, 56% of those who do not suffer from any abdominal cramps used it because it is more useful, and 53.7% of those who sometimes have abdominal cramps also used it for its usefulness. One UAE study on "soothing methods to calm a bay in Arab country" revealed that herbs were the commonest soothing method, with Anise being the most frequently used herb (Abdulrazzaq et al., 2009). Due to frequent crying and fuss attacks, families of babies with IC experience stress, anxiety, exhaustion, and a decline intolerance. This disorder may disrupt mother-infant bonding, leading to a loss of self-confidence, feelings of inadequacy, depression in the mother, and shaken baby syndrome, and even infant death (Barr, 2014).

5. CONCLUSION

This study demonstrated a relatively high prevalence of IC in Saudi Arabia. However, low levels of knowledge regarding IC and Anise tea were reported among the Saudi mothers. The majority of the mothers used Anise tea for IC, and only a few mothers visited the doctor for the same reason. Most of the mothers did not notice any side effects of Anise tea. We found a significant

association between the child's age, the mother's marital status, and the reasons for giving Anise tea for colic pain, and the frequency of giving Anise tea. The reason for giving Anise tea was also significantly associated with frequencies of baby's suffering from cramps and abdominal pain.

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Informed consent

Informed consent was obtained from all participants included in the study.

Ethical Consideration

The study was approved by the Research Ethics Committee of the General Directorate of the Health Affairs of the Central Region of Saudi Arabia; Program of the Saudi Board of Family Medicine in the central second health cluster with approval number 20-777.

Author Contributions

All the authors contributed evenly with regards to data collecting, analysis, drafting and proofreading the final draft.

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Conflict of Interest

There are no conflicts of interest.

Data and materials availability

All data associated with this study are present in the paper.

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